A Longitudinal Case Study of
Curriculum Genres, K–3

Marilyn Chapman

I have presented the findings from a longitudinal case study of one child's writing from kindergarten to grade 3, across different curriculum contexts, with a focus on writing in mathematics, social studies, science, and music. I describe changes in textual features of the child's writing over time, which support Newkirk's (1987) developmental schema for non-narrative writing and extend my previous studies of emergent genres (Chapman, 1994, 1995). The data show that the focal child's content-area writing began in grade 1 and was, to a great degree, focused on exposition, progressing from simple lists and labels to multi-paragraph reports.

Keywords: elementary education, children's writing, genre, longitudinal research

Dans cet article, je présente les résultats d'une étude de cas longitudinale portant sur l'écriture chez un enfant, de la maternelle à la 3ᵉ année, dans divers contextes pédagogiques, notamment en mathématiques, en sciences humaines, en sciences et en musique. Ma description de l'évolution des caractéristiques textuelles correspond au schème de développement de Newkirk (1987) pour l'écriture non narrative et prolonge mes travaux antérieurs sur l'émergence des genres (Chapman, 1994, 1995). L'analyse des données écrites suggère que l'écriture axée sur les domaines d'intérêt de l'enfant a commencé en 1ᵉʳᵉ année et était centrée, dans une large mesure, sur l'exposition, progressant de simples listes et étiquettes jusqu'à des rapports de plusieurs paragraphes.

Mots clés : enseignement primaire, écriture chez l'enfant, genre, recherche longitudinale

_____

Learning to write, a part of emergent literacy, involves both the cognitive and social construction of literacy knowledge (Chapman, 1995; Dyson, 1993). Earlier studies (e.g., Clay, 1975) provided important insights into children's acquisition and development of orthography, particularly spelling. More recently, researchers have widened the lens beyond surface features to focus on aspects such as organizational patterns of different genres and the impact of social contexts on students' texts. Genre research can provide important

information about how young children learn to write in different contexts. However, genre research in young children's writing has been quite limited, focusing to a great extent on narrative, perhaps because, as Christie (1986) and others have noted, it appears to have been more highly valued than non-narrative writing in the primary grades and considered easier to learn (Moffett, 1968).

In tracing the development of children's oral narratives, Applebee (1978) described how two basic processes, first centring and then chaining, produce increasingly mature narrative forms, from "heaps" to true narratives. More recent studies (Chapman, 1994, 1996) demonstrate that chaining and centring can occur at the same time in development. In a key study of non-narrative writing, Newkirk (1987) showed how centring and chaining apply in genres other than narrative. He demonstrated that students develop more complex non-narrative forms from the label (a one-word or one-sentence identification of a picture) and the list (a series of names, dates, facts, etc., usually not in sentence form). Few studies have looked longitudinally at children's development in written genres in different curriculum contexts.

Researchers of young children's writing have shown that learning genres is part of their literacy development. My own inquiries into children's writing during writing workshop have demonstrated that learning genres is an emergent process (Chapman, 1994). Donovan (1997) found that kindergarten children can write information texts and stories and are aware of how they are different even before they can write with conventional spellings. In a more recent study of writing in one school from kindergarten to grade 5, Donovan (2001) found that "even the youngest children differentiated between the [narrative and expository] genres with over half of all kindergartners and first graders producing texts classified at some level of organizational complexity above labels and statements. By second grade all but a few children did so" (p. 394). In two experimental studies Kamberelis (1999) and Kamberelis and Bovino (1999) showed that fewer children in kindergarten to grade 2 are able to produce reports in comparison to stories. Yet little research exists to document the longitudinal development of individual children in what I refer to as "curriculum genres." Furthermore, the extant literature on children's genre development has focused on children's learning textual features rather than learning genres as situated, social practices.

PURPOSE OF THE STUDY

In the present study I examined the writing produced by a single child, whom I call Michael (a pseudonym), across the curriculum areas from kindergarten through grade 3 to determine the range and purpose of his cross-curriculum writing, and to look at the development of his genres over time. I borrow Christie's (1993) term "curriculum genres" (p. 154) to refer to genres in subjects other than language arts. (Note that this is different from the way in which Christie uses the term.) The questions that guided the analysis included the following:

1. In what different curriculum areas, or school subjects, did the focal child write during kindergarten to grade 3?
2. To what extent did he write in different curriculum areas/school subjects other than language arts?
3. Which curriculum genres were evident in his writing and how might these genres be characterized?
4. What changes or patterns occurred in his curriculum genres from kindergarten to grade 3?

Gaining knowledge of many genres is a primary developmental task for young writers (Chapman, 1999). For school-age children, the classroom is a most significant context for acquiring written genres. In the findings from this study, I have provided insights to inform research and practice in writing across the curriculum for young children.

THEORETICAL FRAMEWORK

In this study I have used a sociocognitive, constructivist perspective that acknowledges the role of both cognitive and social processes in learning. This perspective is derived from the work of cognitive psychologists, such as Piaget (1974), who argued that children's minds are structured in such a way that they can construct rules of written language based on their interactions with people and phenomena in the world. It is also informed by Vygotsky's (1978) theory that all thought, including language and literacy learning, occurs first in the social plane and then gradually becomes internalized. Bakhtin (1979/1986) extended this notion of social thought, arguing that people learn language and literacy through communication with those around them, and that language is infused with socially and culturally constructed meanings and values. Bakhtin considered genres to be

compositional structures embedded in and developing out of various spheres of human activity. "Each sphere of activity contains an entire repertoire of speech genres [oral and written] that differentiate and grow as the particular sphere develops and becomes more complex" (Bakhtin, 1986, p. 60). He argued that children learn genres through participation in a kind of social dialogue: children process the words of others (both spoken and written) dialogically into their own words with the help of others' words.

Following Bakhtin, recent genre researchers have explored writing in different spheres of activity, such as expository writing at the post secondary level and in the workplace, emerging technologies, and cross-cultural studies. In rhetorical genre studies (Freedman, 1999) researchers view textual features as "surface traces" (Freedman & Medway, 1994, p. 2) that reflect rhetorical actions derived from writers' social motives in response to recurring social situations. Such researchers generally use methods of in-depth observation to study writers within their sociocultural contexts as well as examining the written texts embedded in these contexts. Because the primary data in my study were written (writing/drawing) texts, with limited observational data, I have focused by necessity on textual analyses. I make two key assumptions that are relevant to this study: (a) children's writing/drawing texts can provide insights into children as writers, including their genre development, and (b) their writing/drawing texts provide textual traces that can reveal information about the contexts in which they produced the writing.

In the context of this study, I use the word "genre" to refer to text-types or ways of organizing or structuring discourse. Although genres have regular discourse patterns, they are open and flexible rather than fixed or immutable, and reflect an interplay of *content* — the meaning the writer expresses, *form* — the structure, organization, or pattern of the text, *context* — the situation in which the writing occurs, and *intention* — the writer's purpose (function).

METHOD

Context of the Study

Michael, a young Canadian boy of mixed ancestry (Asian and Caucasian), was enrolled in his neighbourhood school in an urban school district in British Columbia. He attended this school, situated

within a working- to middle-class neighborhood, in kindergarten through grade 3. Michael lived with his parents and a younger brother, Sean. His father was a professional and his mother, a graduate student at the local university. His school has a long history of teaching practices that might be described as child-centred, such as multi-age classrooms and integrated approaches to instruction (e.g., theme studies). Michael attended kindergarten half-time, as is the practice in British Columbia. He was in a multi-age classroom for grades 1 and 2, taught by the same teacher both years; he then moved on to third grade with another teacher.

In British Columbia, the elementary curriculum is set out in Integrated Resource Packages (IRPs) for kindergarten to grade 7 for each subject area — for example, the *English Language Arts K to 7 Integrated Resource Package* (British Columbia Ministry of Education, Skills and Training, 1996). The IRPs include the provincially prescribed learning outcome statements for kindergarten–grade 1, grades 2–3, grade 4, grade 5, grade 6, and grade 7. Although the outcomes for the intermediate grades (4–7) are specified for each grade level, the primary grades are organized in two-year bands. The outcomes for K–1 are expectations for the end of grade 1 (there is no separate kindergarten curriculum); the grades 2–3 outcomes are expectations for the end of grade 3.[1]

In my analysis of the learning outcomes for writing encompassed in the English Language Arts IRP, I found four major purposes for writing in kindergarten to grade 3:
• to demonstrate comprehension of what is read, heard, or viewed (explicitly stated), and to respond to text (implied),
• to acquire written language conventions at the word and sentence level (explicit),
• to generate and work with ideas and information (explicit and implicit), collect and manage information (explicit and implicit); explore ideas, feelings, and experiences (implicit),
• to revise, and self-evaluate (explicit). (Chapman, 2003)
The introduction to this document, although rarely mentioning writing specifically, states that language is integral to all areas of the curriculum, and refers to "making connections to other areas of study" (p. 2), yet there are only three learning outcomes for K–3 that may be interpreted as related to writing across the curriculum. By the end of grade 1, children are expected "to create simple charts, webs, or illustrations as a way of organizing information" (p. A-4), and by the end of grade 3, "to organize details and information to make simple

charts, webs, or illustrations" (p. A-4) and "to sort, organize, and represent specific information" (p. A-12). The curriculum does not mention learning written discourse forms or genres in the primary language arts curriculum, nor using writing as a tool for learning.

Data Collection and Analysis

Michael's mother carefully collected and compiled all the written work that he produced during his primary years. (She thought at one time that she might use his writings for her own research study; however, her research interests took a different direction and thus she offered them to me, thinking, rightfully so, that I might be interested in using this rich data set to further my understandings of genre development). Although the main data for this study was this corpus of writing from Michael's first four years of schooling (kindergarten through grade 3), the writing was supplemented by data his mother collected through informal observations in the classroom, conversations with his teachers, and attendance at parent-teacher meetings. These data were provided to me through interviews and conversations about Michael's school writing. Because the data were collected in this way, it is important to acknowledge the limitations this third-party data collection presents in the analysis and interpretation of the data.

I sorted all pieces of writing/drawing into curriculum contexts, sequenced by date, transcribed them into standard spelling to facilitate the analysis, and calculated a frequency distribution for each curriculum area. For the present study I have included in my genre analysis all Michael's kindergarten writing plus all writing produced in contexts other than language arts in grades 1 to 3. For mathematics, I used only those pieces that included written words.[2]

I coded each piece for genre using a multi-step process I developed. Part of the process involved a Langer-Meyers coherence analysis (Langer, 1985, modified by Newkirk, 1987). This method produces a structural "X-ray" for each piece. I combined this coherence analysis, using relationships between clausal units to develop structural categories, with an inductive analysis that took into account function, content, and context (for specific details of this procedure, see Chapman, 1995). I coded pieces that were consistent with genre categories found in previous studies (e.g., Chapman, 1995; Newkirk, 1987) and created new categories to account for all the data. Finally, I constructed frequency distributions for each genre by grade and curriculum area.

FINDINGS

Data analyses of Michael's writing revealed many genres consistent with those identified in earlier work by Newkirk (1987) and Chapman (1994, 1995), including non-narrative genres with a "centred" or "clustered" structure: label, list, attribute series, hierarchical attribute series, basic paragraph, and multiple paragraph report. In the data I also found evidence of genres with a "chained" structure: expanded record, recount, and verse/song. Michael also wrote in genres that had a visual component, including data charts, K-W-L (Know-Wonder-Learned) charts, and webs. Figure 1 depicts centring and chaining structures; examples are provided throughout the discussion to illustrate these structures.[3]
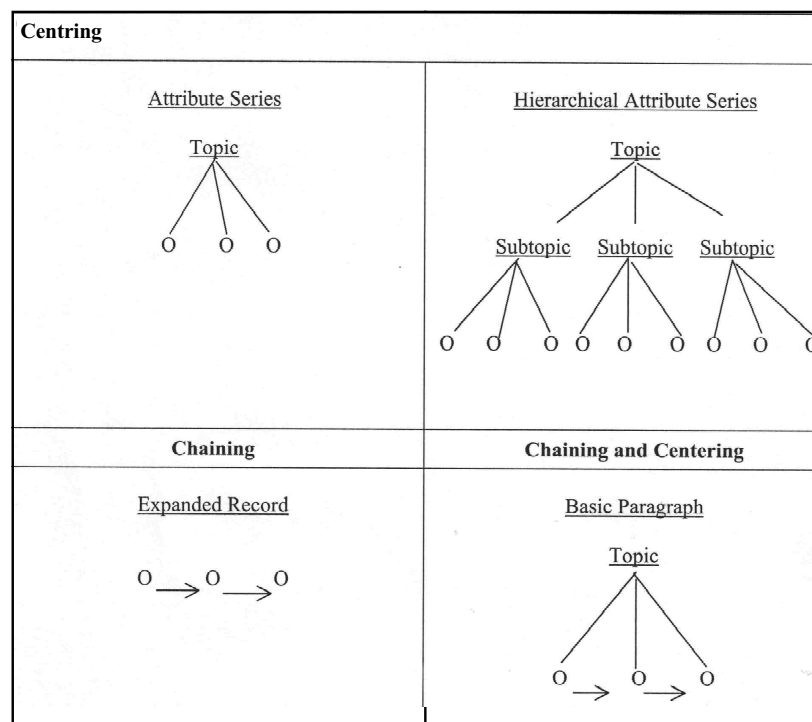

Figure 1. Examples of centring and chaining text structures

Extent of Writing Across the Curriculum

In kindergarten Michael wrote almost exclusively in his journal. In grades 1 to 3, he wrote in a number of curriculum contexts. For this reason, I present the analyses of Michael's kindergarten writing separately from the results for grades 1 to 3.

   Writing in Kindergarten. Michael's school writing began in early November of his kindergarten year with single-word labels accompanying pictures. Of the 35 pieces of writing he produced in kindergarten, 34 were in his journal. The journal entries included 25 labels (accompanying drawings), 6 lists (all of which were the letters of the alphabet in list form), and 3 attribute series. His teacher had transcribed four of his journal entries (1 label, 3 attribute series) into standard spelling shortly after Michael had written them. The remaining piece, one that Michael dictated to his teacher, was an "All About Me" booklet (an attribute series) that contained photos of Michael at various ages.

   In kindergarten, the main social purpose for writing is to learn to write (that is, construct understandings of written language and how it works) through engagement in writing. The textual traces reveal that Michael used writing as a medium of expression, specifically, to communicate ideas in writing generated through drawing (and in the case of the "All About Me" booklet, through a series of photographs). The writing/drawing texts Michael produced also served a second, perhaps equally important purpose: to provide his teacher with evidence of his literacy learning and to document his growth over time. Michael's texts evolved from simple labels, such as *Christmas tree* (December), to more elaborate pieces, such as: *This is a maze. If you hit the dragon and the mouth of the dragon you might get eaten up* (May). Note that both examples contain exophoric references[4] to a picture, which was typical of Michael's kindergarten writing (all but the alphabet lists) because of the way in which his teacher structured writing tasks: primarily drawing and then writing about one's drawings. During writing time, the teacher encouraged the children to represent their ideas through drawing a picture and then writing about it, using whatever knowledge they had. The alphabet lists reflect the *inventory principle*, through which children "take stock" of their learning (Clay, 1975).

   The genres (labels, lists, and attribute series) were similar to those in my (Chapman, 1995) study of first-grade writing workshop and typical of what I have observed in journal writing in many primary classrooms. The regularities of textual features in Michael's writing — the textual

traces — reflected the recurring writing context and task in kindergarten: to draw a picture and write about it during writing time. None of the writing Michael did in kindergarten appeared to be related to any school subject or curriculum area because the sources of topics were his personal experiences (self, family, special days) or his imagination (mazes, rockets, dragons). Literacy learning for its own sake was the apparent goal of Michael's kindergarten teacher; the content for writing came from the child rather than from the curriculum.

Writing in Grades 1 to 3. Writing in the curriculum areas was evident for the first time in grade one with the introduction of books identified by subject: math, language, and three "Writing" books similar to the journal in kindergarten. There was also a portfolio containing a "brown bag book" (journal-type, written in September), a "Canada Dictionary" booklet (related to social studies), a "Seeds" booklet (related to science), as well as 54 other pieces. This curricular differentiation continued in second grade with math, handwriting, language, and four "Written Work" books. Michael's grade-2 portfolio contained another "brown bag book," a "Spider Booklet" and an "Ocean Booklet," both related to science, and 72 other pieces. In third grade, his notebooks included math, a "September" book, two handwriting books, a language book, two "Written Work" books, and a journal.

The number of books dedicated to specific subjects is one indication of the dominance of language arts as the curricular context for writing throughout the primary grades. Another is the number of pieces for the different subjects. Clearly, the vast majority of Michael's writing was related to language arts, as shown below:

- *Kindergarten*: 35 pieces in all; no differentiation by subject
- *Grade 1*: Language Arts (136); Mathematics (40); Science (20); Social Studies (5); Total, 201; 68% Language-Arts-related
- *Grade 2*: Language Arts (119); Mathematics (26); Science (41); Social Studies (1); Total, 187; 64% Language-Arts-related
- *Grade 3*: Language Arts (144); Mathematics (41); Science (3); Social Studies (16); Music (8); Total, 212; 68% Language-Arts-related.

In sum, although virtually none of Michael's kindergarten writing was curriculum-oriented, he wrote about a third of his writing in grades 1–3 in curriculum contexts such as science, social studies, and mathematics. This range clearly indicates that primary children are capable of writing across the curriculum and need not be limited to writing in language arts.

Genres Across the Curriculum.

Table 1 summarizes the frequency distribution to array the relationship between genre and curriculum in Michael's writing from kindergarten to grade 3. As the table shows, Michael produced no curriculum genres

TABLE 1

Genre Distributions by Curriculum Context and Grade

	Grade 1	Grade 2	Grade 3
Mathematics	list (3) label (1) data chart (17) expanded record (19)	list (8) data chart (6) expanded record (12)	list (17) label (3) data chart (8) expanded record (12) self evaluation (1)
Science	list (7) label (4) *attribute series* (4) *basic paragraph* (1) recount (2) Venn diagram (1) experiment (1)	list (15) label (7) data chart (1) K-W-L chart (2) web (2) *attribute series* (6) *H. attribute series* (3) *basic paragraph* (1) expanded record (1) recount (1) narrative (1) "postcard" (1)	 *attribute series* (2) *basic paragraph* (1)
Social Studies	list (3) K-W-L chart (1) *attribute series* (1)	*basic paragraph* (1)	list (6) label (3) K-W-L chart (1) *attribute series* (1) *H. attribute series* (1) *basic paragraph* (1) *multi-paragraph report* (1) expanded record (1) verse/song (1)
Music			list (1) *H. attribute series* (2) *basic paragraph* (2) *multi-paragraph report* (1)

Note: Michael's writing in kindergarten was not situated within curricular contexts Italics indicate genres related to expository "reports": attribute series, H. (hierarchical) attribute series, basic paragraph, and multi-paragraph report.

in kindergarten and wrote mathematics, science, and social studies genres in grades 1, 2, and 3, and music in grade 3 only. Michael's teacher in grades 1 and 2 tended to focus much more on science than social studies, whereas his grade-3 teacher emphasized social studies rather than science. In the following section I present the findings separately for each curriculum area.

Genres in Mathematics. Michael communicated mathematical ideas mostly through the use of mathematical symbols alone, for example, in equations. The data analyses show a limited range of mathematical genres that involved writing, consisting mostly of three types across grades 1 to 3: lists, data charts, and expanded records. Of the few labels that were found, all were captions for geometrical shapes, cut and pasted into a math book. Lists were primarily answers to questions; there were also several "agendas" in list form (related to learning to tell time), as shown in the following excerpt:

> *DAILY SCHEDULE*
> *AM*
> *1. 6:30   I woke up.*
> *2. 6:35   I got dressed up.*
> *3. 7:00   I have my breakfast, etc.* (agenda/list; grade 3, January)

Michael also wrote various types of data charts: place value charts and graphs, estimates and solutions, attributes, results of an opinion poll (should whales be kept in aquariums). The weather chart, introduced in grade 1, continued monthly through grade 3 with little change from the following example:

I found out there were 15 sunny days, 11 cloudy days and 4 rainy days. (basic record; grade 1, November)

Michael used expanded records for measurement activities (e.g., size of a pumpkin) and to record which activity cards he had completed. By third grade, the most frequent written genre in mathematics was lists of answers to "story problems," e.g.:

83-53 = 30   Then edy [30] *snowflakes melted away.* (list/answers; grade 3, November)

The textual traces of his mathematics-related written genres reveal the recurring contexts and purposes for writing in mathematics. The major social actions fulfilled by Michael's writing in mathematics were to practise and apply mathematical processes and to demonstrate his

knowledge of mathematical concepts and ability to perform mathematical operations. Another frequent purpose for writing in mathematics was tied to "classroom workplace" routines and administrative tasks (Chapman, 1999), specifically, record keeping:

I did geometry card #13 blue. I did geometry card #35 yellow.
I did geometry card #22 blue. (expanded record; grade 1, March)

Such record keeping serves a larger social purpose: learning to be a responsible student and to document and organize one's own work.

   Although the practice of writing-to-learn in mathematics has been around for some time (e.g., Countryman, 1992), for Michael, learning mathematics and learning to write mathematics were to a great degree algorithmic or formulaic. Michael's mathematical genres were very stable and changed little over time. Only one piece was reflective, a sentence completion-type, self-evaluation sheet done in grade 3.[5]

   Genres in Social Studies and Science. Michael was introduced to writing in social studies and science in first grade. Interestingly, his grade 1/2 teacher emphasized science, and his grade 3 teacher social studies. I found the greatest genre repertoire in science. Three pieces from second-grade science (recount, narrative, and a "postcard") and two from third-grade social studies (expanded record and verse) were imaginative works related to the topic of study, but most of his science and social studies writing was factual. Michael, himself, explains the importance of factual writing:

<u>What is Research?</u>
Research is a careful hunting for facts or truth. Research is finding how high or how low places are, [in] elevation. Research is also the climate. You look up to see if it is desert or tropical. Finding key facts and minerals in different places is research. You can research on dinosaurs, buildings, planets, oceans, musical instruments, plants, air, people, and many more. You can research on almost anything you can think of. There are some things you cannot research because people have not found enough things about that thing. (basic paragraph; grade 3, May)

Michael clearly understood that a major purpose for writing (and reading) in science and social studies was, in his own words, "a careful hunting for facts or truth" and "finding key facts," with the intention of helping him learn to access, acquire, use, and communicate information. As well as writing various lists (e.g., facts), labels (on diagrams and maps), data charts, K-W-L (Know-Wonder-Learned) charts, and webs, from first grade on, Michael was learning what is

likely the dominant genre in school science and social studies: the expository report. Indeed, in my previous studies and informal observations of classrooms, I have found that report writing is *the* genre associated with these subjects: a major goal of writing in science and social studies is learning to write research reports. The written genres Michael produced in social studies and science also served to provide evidence of his learning, both of content knowledge and the reading/writing/researching processes. I noted only one recorded experiment throughout the four-year period (in grade 1) that further suggests an emphasis on reading and writing to learn science rather than learning through hands-on activities.[6]

Genres in Music. There were no genres associated with music (as a subject) in kindergarten through grade 2, although Michael had written several songs in his language arts books. In grade 3, however, he included five types of reports in his portfolio, all written in May, including one list (under the heading, "What I know about Bach"), two hierarchical attribute series, two basic paragraphs, and one multi-paragraph report that was written in the first person ("Hello, my name is Mozart . . ." excerpted later in this section). These pieces were all about famous composers, as for example, in the following:

<div align="center">

Bach
</div>

Bach loved music. He wrote 1200 pieces of music in his whole life! He wrote 42 pieces in jail. Bach wrote music with Prince Leopold. Bach died of a stroke in 1750. Bach's music is still very popular today. If you want to hear Bach's music today, you can visit a symphony performance. (basic paragraph; grade 3, May)

Music was rarely a context for writing genres except for a unit on music history/composers in which Michael's primary function was to acquire knowledge and communicate what he learned. Even so, Michael personalized these writing ventures to identify with the composer and entertain a reader as well as to inform, as shown below:

<div align="center">

Mozart
</div>

Hello, my name is Mozart. I am in a music class with Haydn. Haydn is my music teacher.

After my two hour music lesson, Beethoven, my best friend comes for a two hour lesson too. I wait for Beethoven to finish his lesson.

When he is done me and Beethoven go out and play tag in the street. Oh, I am 9 and my friend Beethoven is 9 too!

When we grow up, my most famous song was "Twinkle, Twinkle Little Star." The people who bought the music of "Twinkle, Twinkle Little Star" only gave stuff like

*pictures and so on. I died very poor at the age of 35. No one knows where I was
buried except me. I was buried on a shady beach.*
                                        The End (multiple paragraph report; grade 3, May)

The data from across the curriculum areas show that in the early
grades Michael "could handle multiple contexts for writing, all of which
entailed decisions about content, genre, rhetorical situations, and
composing processes" (Beaufort, 1999, p. 178). His writing provides
evidence that Michael understood the social purposes of genres, both
practical and symbolic.

Changes in Curriculum Genres over Time

Michael's writing changed over time in two ways. First, his corpus of
writing reveals, in general, a change I would describe as quantitative:
an increasing number of written genres (i.e., a widening repertoire)
from kindergarten to third grade, although most of the changes occurred
between kindergarten and grade 1. In mathematics in grade 1, for
example, he began to write answers to questions, provide labels,
develop data charts, and write expanded records, but there was
virtually no change after this. Likewise, in first grade he also began a
developmental trajectory towards report writing. His progress also
entailed a qualitative change: increasing complexity and maturity in
structure, moving from labels and lists through attribute series,
hierarchical attribute series, to basic paragraphs, and then to multi-
paragraph reports. This development, although not a strictly linear
trajectory, is consistent with Newkirk's (1987) developmental sequence
of non-narrative writing. With the exception of the K-W-L (Know-
Wonder-Learned) chart and the web, introduced in second grade,
Michael focused his content area writing primarily on reports.
Nevertheless, the qualitative changes from second to third grade are
quite dramatic, a change evident in the comparison between the
hierarchical attribute series in "About Whales!!!" to the multi-paragraph
report entitled, "Patagonia Desert."

<u>*About Whales!!!*</u>
*[1] A whale is a mammal that feeds its young milk. The baby is called a calf. [2]
Humans use whales for oil, meat, fertilizer, soap, and cosmetics. [3] Whales have
few enemies. One is humans. [4] Whales live in five oceans. Whales dive and swim.
Whales have flukes to swim. [5] Whales have mouth hair. Whales have ear holes.
Whales have small eyes. Whales have a blowhole to breathe with. Whales have blubber
to keep them warm.*

[6] Whales that have no dorsal fin live about 20 years. Whales that have a dorsal fin live about 80 years. [7] Whales eat shrimp, krill, and cuttlefish. Whales like the Blue whale dive deep for giant squid. [8] There are baleen whales, and there are toothed whales. [9] I like whales because they are endangered. (hierarchical attribute series; grade 2, no date)

Patagonia Desert

I am studying the Patagonia desert. It is in Argentina. The closest ocean to it is the South Atlantic Ocean. The compass point is 40 degrees S. of the equator and 65 degrees W. of the Prime Meridian.

My desert is in the continent of South America and the country of Argentina. The climate is desert. There would not be much vegetation. I would take sunscreen. You would not get altitude sick. Come on, it's sea level! In the winter it is 21–32 degrees Celsius and in the summer it is 1–10 degrees Celsius. It has under 12.5 cm of rain a year. That's little rain!

If you saw my desert you would see mostly flat ground. There is no tropical land, just desert. You might see miners digging for uranium. It is all sandy. The vegetation is treeless plain. The agricultural activity is livestock ranching.

People in Patagonia are not like Canadian people. Their languages are Spanish, English, Italian, German and French.

I am studying Pudu. It is shy and lives in small groups. If they live in small groups it's easier to get away from their only enemy, humans.

The Patagonia Desert is one of the smallest deserts in the world. My desert is one out of two in South America. The Patagonia only has one mineral, uranium. The only languages the people in my desert speak are: Spanish, English, Italian, German, and French. The animal in my desert is the Pudu. It is the smallest deer in South America.

I enjoyed this study because it was fun doing the thing I am doing now, my paragraph of course! I would give it on a scale of 100, 100. (multiple paragraph report; grade 3, no date)

Although Michael used complex sentence structure and technical vocabulary in the first piece (flukes, blowhole, baleen, dorsal fin), his ideas and language are more sophisticated in the latter work (note the description of the geographical location). Most notable is the change in the structure and organization of the pieces. Although he wrote "About Whales" as one unit, it is comprised of nine subunits (which I have numbered in the transcription), clusters of ideas with 1 to 5 T-units per cluster, with an average of 2.2 sentences and 2.6 clauses per cluster.[7] In most cases the ideas within each subunit are in random order and rearranging the ideas does not change the meaning. Likewise, the subunits are randomly ordered. "About Whales" also shows that Michael is beginning to develop concepts of "introduction" and "conclusion," common features of exposition.

The "Patagonia Desert" piece contains significantly more information, with main ideas supported by details. This growth is

evidenced by an average of 4.5 sentences and 5.4 clauses per paragraph, more than double those of the respective clusters in the "About Whales" piece. He is beginning to develop a conception of paragraphing, with ideas organized in a more logical manner, both within and between subunits, and using standard paragraph indentation format. He displays a stronger sense of introduction, locating the Patagonia Desert geographically, and a concluding section that provides a sense of closure to the piece. This piece is also more personalized and shows a greater awareness of audience. These changes reveal an increasingly refined schema for the report genre, with differentiation in form, function, and features of the report. At the same time, the "Patagonia Desert" piece shows greater personal involvement ("I" and "my" appear 11 times here but only once in "About Whales"), interpretation of information ("That's little rain!") rather than simply reportage, audience awareness ("you" appears 3 times), and voice (e.g., "Come on, it's sea level"). His genre growth involved much more than simply learning textual features of genres.

The changes in Michael's writing over time suggest development in multiple domains of knowledge related to writing: discourse community knowledge, genre knowledge, rhetorical knowledge, subject matter knowledge, and writing process knowledge (Beaufort, 1999). The data show that even as a primary student he "could handle multiple contexts for writing, all of which entailed decisions about content, genre, rhetorical situations, and composing processes" (Beaufort, 1999, p. 178). They show, furthermore, that curriculum-related writing is both possible and developmentally appropriate for primary children, and it need not come at the expense of development of expressiveness, audience awareness, and voice. Indeed, it should not, because, as Furr (2003) reminds us, "genuine writing — the kind we read for entertainment and edification in the 'better' magazines and books — appeals to us largely because it has voice. The voice is unique to its author[,] and present because the author is personally invested in the work" (p. 518).

Purposes for Curricular Writing in School

As Beaufort (1999) explained, "As genre theory has expanded to include the genre's social functions and culture-laden norms, it has become a strong analytical tool for understanding local conditions for composing" (p. 176). Florio and Clark (1982) stated that children's writing reveals as much about school as it does about children as writers. Although a case study of a single child cannot be used to draw conclusions about

schooling in general, it can provide insights into the experienced writing curriculum. Michael's writing was mainly situated in language arts during his first four years of schooling. This is not surprising given that learning to read and write is the major focus of the primary language arts curriculum. It is also evident that even from first grade, Michael experienced a movement towards connecting writing to other curricular domains.

The data from this study suggest that in Michael's kindergarten classroom, the major purposes of writing were to learn about written language and acquire writing skills through exploring writing as a medium of expression and communication of ideas: in Halliday's (1982) words, learning language, learning about language, and learning through language in an integrated way. At the same time, the writing Michael produced provided his kindergarten teacher with evidence of his literacy learning. Although these purposes for writing continued into the primary grades, cross-curricular content came into play in first grade, with writing also serving as a vehicle for learning content knowledge (especially in science and social studies) and practising content-area skills (e.g., mathematical problem solving; accessing, acquiring, using, and communicating information in social studies, science, and music). As well as demonstrating his language and literacy skills and knowledge (including genre knowledge), Michael displayed his knowledge of curriculum "content." Documenting learning for evaluation is a major social purpose for writing in academic contexts (Dias, Freedman, Medway, & Paré, 1999). Although some educators may be critical of this assessment function, I argue that writing provides more authentic evidence of student learning than decontextualized practice exercises or pencil-paper tests, especially for young children (Chapman, 1993, 1997).

The enacted curriculum reflects an integration of writing in "the content areas," especially science. Interestingly, for Michael, music also provided content for writing. Yet, because the topics were famous composers, his writing was more reflective of history/social studies than music — composers rather than composing. This emphasis on exposition in social studies, science, and music reveals a conception of genre as learning form/structure or text type (the report) rather than as learning to participate in a community of discourse, that is, learning to think and communicate like scientists or geographers. Although learning to write curriculum genres, including exposition, is important in its own right, it is not the sole purpose for writing in different curricular contexts. Equally important, perhaps even more so, is the

acquisition of a genre repertoire as a set of cultural resources and cognitive tools (Chapman, 1999; Wells, 1999), for example, to foster scientific thinking processes, such as observing, questioning, predicting, hypothesizing, describing, explaining, and investigating (Ebbers, 2002).

DISCUSSION

In this study I examined the longitudinal development of one child's curriculum genres, from kindergarten through third grade. The educational significance of this case study derives from the use of naturalistic data in curriculum contexts over a period of four years. It thus contributes insights into children's development in curriculum genres and also raises awareness of the discourse forms children may engage in during their kindergarten and primary school years. The study also confirms the validity of Newkirk's (1987) schema for the development of non-narrative writing as it applies to individual children. At the same time, the data support Dias et al.'s (1999) findings that the major purposes for writing in academic contexts are to promote learning (which in this study was first of all focused on learning to write and then to learn content), and secondly, to demonstrate learning for purposes of assessment and evaluation (specifically, to provide evidence of literacy development and content knowledge).

The data show that Michael acquired a repertoire of genres across the curriculum, and that his ability to use these genres became increasingly complex. This range clearly indicates that primary children need not be limited to writing in language arts. Indeed, because children in grade 4 and beyond are exposed to increasing demands of literacy in the content areas, it is important that they have experiences in cross-curricular writing during the primary years. Writing across the curriculum (WAC), an outgrowth of the language-across-the-curriculum movement, was developed in Britain during the 1960s (e.g., Barnes, Britton, & Rosen, 1969) and promoted through The Bullock Report, *A Language for Life* (Department of Education and Science, 1975). As a distinct movement, WAC has been encouraged, especially at the secondary level, for more than twenty years, "yet there is evidence that it may be recommended more often than it is actually implemented" (Guzzetti, 2002, p. 688).

Michael, the focal child in this study, did not engage in any curricular writing in kindergarten. Yet, when he was introduced to curriculum genres in grade 1, his genre repertoire grew considerably, providing a foundation of curriculum genres that became increasingly complex over

time. My findings challenge the sequence of first learning to write through personal writing and "stories" in the early stages, based on the assumption that those genres are considered easier for young children, and then later to engage in writing to learn (through curriculum genres) in later primary and intermediate grades. There is strong evidence that young children acquire those genres to which they are exposed and have opportunities to use (Chapman, 1994, 1995; Donovan, 1997, 2001; Kamberelis, 1999; Kamberelis & Bovino 1999; Pappas, 1991; Wollman-Bonilla, 2000). Despite the critical importance of non-narrative genres, schools have been less effective in developing children's writing abilities in curriculum genres than in narrative (Moss, Leone, & Dipillo, 1997; Pappas, 1993), creating an "expository gap" at about grade 4 (Gee, 2001), when informational texts begin to play a larger role. Some scholars have suggested that lower achievement in content-area literacy contributes to the "the fourth grade slump" in overall literacy achievement (Chall, Jacobs, & Baldwin, 1990).

Gee (2001) speculated that it is "children's difficulties with using language and literacy within specific practices and genres that fuels the fourth grade drop-off" (p. 10). Other scholars (e.g., Christie, 1986, 1993) have argued that informational writing will not develop "naturally" and thus needs to be taught systematically and explicitly. Yet young children can appropriate textual features of genres and recontextualize them when teachers provide authentic contexts for children to communicate what they have learned, for example, using Family Message Journals to enable children to share their science learning with their parents (Wollman-Bonilla, 2000). A key reason for engaging children in content-area writing is that it plays a critical role in the development of higher-level thinking (Vygotsky, 1978) as children use and transform information, clarify and extend meaning, make personal connections, and construct understanding (Wells, 1999). Furthermore, because writing makes language and ideas visible, it also provides a vehicle for dealing with language and thought in a concrete way, which is especially important for young children.

Content-area writing during the early school years is also important because it can spark children's curiosities and interests (Furr, 2003), especially for boys (Levine & Geldman-Caspar, 1996; Worthy, Moorman, & Turner, 1999). Curriculum genres help children develop knowledge of their physical, natural, and social worlds, which in turn contributes to increased comprehension (Neuman, 2001) and awareness of language and structures of informational texts (Lemke, 1990). Engagement in writing curriculum genres builds young children's conceptual

knowledge of the functions and forms of informational texts and discourse patterns (Donovan, 1997; Kamberelis & Bovino, 1999; Pappas, 1991, 1993). Children who receive explicit instruction in textual features of informational genres are able to produce writing consistent with those modelled (Christie, 1993; Morris, Francis, & Hill, 1993). They can also apply what they have learned from instruction to new contexts and tasks (Kamberelis & Bovino, 1999; Wollman-Bonilla, 2000).

Bakhtin (1979/1986) maintained that there is more to genre learning than textual features of particular genres. He explained how content, form, context, purpose, reader-writer relationships (e.g., audience awareness), and voice interweave in genre learning and use. This longitudinal case study demonstrates how one child learned these multiple dimensions of curriculum genres in his first four years of schooling. It shows how Michael learned to integrate content (related to different school subjects), form (textual features and patterns of a variety of genres, especially exposition), and context (rhetorical situations embedded in spheres of activity related to the content areas). At the same time, it provides evidence that he learned to use genres to address both the social purposes of academic writing (e.g., to display knowledge) and his own purposes for writing, such as entertaining the reader and expressing his personality. This study thus demonstrates that young children's curriculum genre development need not come at the expense of audience awareness and voice.

NOTES

1 The exception to this format is the recently revised mathematics curriculum, which specifies learning outcomes for the end of each grade, K–7. Other curricula under revision retain the K–1 and 2–3 groupings.

2 I considered mathematical representations using numerals only, such as equations, as genres in the largest sense, but excluded these in the analysis because I wanted to focus on written genres.

3 Because it is beyond the scope of this paper to provide an in-depth discussion of genre structure, readers are referred to Newkirk (1987) and Chapman (1994, 1995) for an in-depth treatment.

4 Exophoric references (*exophora)* are words or phrases that require listeners/ readers to refer to something outside a spoken/written text to understand the speaker's/writer's intended meaning, for example "this" in "*This is my book."* When young children write they often combine drawing and writing to convey meanings, and the pronouns they use, such as "this," "that," "these," or "those," often refer to something they have represented in their drawings.

5 This observation, of course, does not mean that his teachers did not encourage reflection in mathematics, for it may have occurred through classroom conversations about mathematics.

6 I must concede, however, that hands-on science activities such as experiments may have occurred more frequently than the written data suggest.

7 A *T-unit* (or minimal terminable unit) consists of a main clause with all its appended modifiers, including subordinate clauses. It was devised by Kellogg Hunt (1965) as a standard measure for use in determining syntactic complexity, such as ratio of clauses per T-unit and ratio of T-units per sentence.

REFERENCES

Applebee, A. N. (1978). *The child's concept of story: Ages two to seventeen.* Chicago: University of Chicago Press.

Bakhtin, M. M. (1986). *Speech genres and other late essays.* (V. W. McGee, Trans., C. Emerson & M. Holquist, Eds.). Austin, TX: University of Texas Press. (Original work published 1979).

Barnes, D., Britton, J., & Rosen, H. (1969). *Language, the learner, and the school.* London, UK: Penguin.

Beaufort, A. (1999). *Writing in the real world: Making the transition from school to work.* New York: Teachers College Press.

British Columbia Ministry of Education, Skills and Training. (1996). *English language arts K to 7 integrated resource package.* Victoria, BC: The Author.

Chall, J., Jacobs, V., & Baldwin, L. (1990). *The reading crisis: Why poor children fall behind.* Cambridge, MA: Harvard University Press.

Chapman, M. L. (1994). The emergence of genres: Some findings from an examination of first grade writing. *Written Communication, 11,* 348-380.

Chapman, M. L. (1995). The sociocognitive construction of written genres in first grade. *Research in the Teaching of English, 29,* 164–192.

Chapman, M. L. (1996). More than spelling: Widening the lens of emergent writing. *Reading Horizons, 36*, 317–339.

Chapman, M. L. (1997). *Weaving webs of meaning: Writing in the elementary school.* Toronto: ITP Nelson.

Chapman, M. L. (1999). Situated, social, active: Rewriting genre in the elementary classroom. *Written Communication 16*, 469-490.

Chapman, M. L. (2003, July 6). *Multiple lenses on the writing curriculum in western Canada.* Paper presented at 8th Conference of the International Federation for the Teaching of English, Melbourne, AU.

Christie, F. (1986). Writing in schools: Generic structures as ways of meaning. In B. Couture (Ed.), *Functional approaches to writing: Research perspectives* (pp. 221–240). London, UK: Frances Pinter.

Christie, F. (1993). Curriculum genres: Planning for effective teaching. In B. Cope & M. Kalantzis (Eds.), *The powers of literacy: A genre approach to teaching writing* (pp. 154–178). Pittsburgh, PA: University of Pittsburgh Press.

Clay, M. M. (1975). *What did I write?* Toronto: Heinemann Educational.

Countryman, J. (1992). *Writing to learn mathematics: Strategies that work, K–12* Portsmouth, NH: Heinemann Educational.

Department of Education and Science (DES). (1975). *A language for life* (The Bullock Report). London, UK: Her Majesty's Stationery Office.

Dias, P., Freedman, A., Medway, P., & Paré, A. (1999). *Worlds apart: Acting and writing in academic and workplace contexts.* Mahwah, NJ: Lawrence Erlbaum Associates.

Donovan, C. (1997, December*). Children's story writing, information writing and genre knowledge across the elementary grades.* Paper presented at the 47th Annual Meeting of the National Reading Conference, Scottsdale, AZ.

Donovan, C. (2001). Children's development and control of written story and informational genres: Insights from one elementary school. *Research in the Teaching of English, 35*, 394–447.

Dyson, A. H. (1993). *From invention to social action in early childhood literacy: A reconceptualization through dialogue about difference* (Technical Report No. 67). Berkeley, CA: University of California, National Center for the Study of Writing.

Ebbers, M. (2002). Science text sets: Using various genres to promote literacy and inquiry. *Language Arts 80*, 40-50.

Florio, S., & Clark, C. (1982). The functions of writing in an elementary classroom. *Research in the Teaching of English, 16*, 115-129.

Freedman, A. (1999). Beyond the text: Towards understanding the teaching and learning of genres. *TESOL Quarterly, 33,* 764–767.

Freedman, A., & Medway, P. (1994). Introduction: New views of genre and their implications for education. In A. Freedman & P. Medway (Eds.), *Learning and teaching genre* (pp. 1–22). Portsmouth, NH: Boynton/Cook Publishers.

Furr, D. (2003). Struggling readers get hooked on writing. *The Reading Teacher, 56,* 518-539.

Gee, J. (2001). Reading, language abilities, and semiotic resources: Beyond limited perspectives on reading. In J. Larson (Ed.), *Literacy as snake oil: Beyond the quick fix* (pp. 7-26). New York: Peter Lang.

Guzzetti, B. (Ed.). (2002). *Literacy in America.* Santa Barbara, CA: ABC-CLIO.

Halliday, M. (1982). Three aspects of children's language development: Learning language, learning through language, learning about language. In Y. Goodman, M. Haussler, & D. Strickland (Eds.), *Oral and written language research: Impact on the schools* (pp. 7–19). Urbana, IL: National Council of Teachers of English.

Hunt, K. (1965). A synopsis of clause-to-sentence length factors. *English Journal, 54,* 305–309.

Kamberelis, G. (1999). Genre development and learning: Children writing stories, science reports, and poems. *Research in the Teaching of English, 33,* 403–460.

Kamberelis, G., & Bovino, T. (1999). Cultural artifacts as scaffolds for genre development. *Reading Research Quarterly, 34,* 138–170.

Langer, J. (1985). The child's sense of genre. *Written Communication, 2,* 157-188.

Lemke, J. (1990). *Talking science: Language, learning, and values.* Norwood, NJ: Ablex.

Levine, T., & Geldman-Caspar, Z. (1996). Informal science writing produced by boys and girls: Writing preference and quality. *British Educational Research Journal, 22,* 421–430.

Moffett, J. (1968). *Teaching the universe of discourse.* Boston: Houghton Mifflin.

Morris, S., Francis, R., & Hill, D. (1993). Using a scaffold for report writing in science. *Australian Journal of Language and Literacy, 16,* 237–248.

Moss, B., Leone, S., & Dipillo, M. L. (1997). Exploring the literature of fact: Linking reading and writing through information trade books. *Language Arts, 74,* 418–429.

Neuman, S. (2001). The role of knowledge in early literacy. *Reading Research Quarterly, 36,* 468-475.

Newkirk, T. (1987). The non-narrative writing of young children. *Research in the Teaching of English, 21,* 121–144.

Pappas, C. (1991). Young children's strategies in learning the "book language" of information books. *Discourse Processes, 14,* 203-225.

Pappas, C. (1993). Is narrative "primary"? Some insights from kindergarteners' pretend reading of stories and information books. *Journal of Reading Behavior, 25,* 97–129.

Piaget, J. (1974). *The language and thought of the child* (M. Gabain, Trans). New York: New American Library.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Cambridge, MA: Harvard University Press.

Wells, G. (1999). *Dialogic inquiry: Towards a sociocultural practice and theory of education.* Cambridge, UK: Cambridge University Press.

Wollman-Bonilla, J. (2000). Teaching science writing to first graders: Genre learning and recontextualization. *Research in the Teaching of English, 35,* 35-65.

Worthy, J., Moorman, M., & Turner, M. (1999). What Johnny likes to read is hard to find in school. *Reading Research Quarterly, 34,* 12–27.